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10/511,958	11/10/2004	Josuke Nakata	F-8435	7127

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EXAMINER

HAFIZ, MURSALIN B

ART UNIT PAPER NUMBER

2814

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1) ☒ Responsive to communication(s) filed on 09 September 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) 15 and 16 is/are allowed.

6) ☒ Claim(s) 1-9 and 11 is/are rejected.

7) ☒ Claim(s) 10 and 12-14 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/19/04, 11/15/04.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 10 is objected to because of the following informalities: in Fig. 11 there is only a reflecting film [33], hence the claim 10 should read "a reflecting film" instead of "reflective films". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4, 6, and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Mitsui high tec (JP 2001267609).

Regarding claim 1, Mitsui high tec disclosed in Fig. 1 and 2, a light receiving or light emitting panel [1] in which a plurality of particulate semiconductor elements [10] that have a light-to-electricity transducing function or electricity-to-light transducing function are incorporated in a planar fashion, characterized in that

A light transmitting printed wiring sheet [12] that is used to position, hold and electrically connect the plurality of semiconductor elements [10] is provided, and

The printed wiring sheet comprises:

A plurality of retaining holes [holes in 11] disposed in a form of matrix having a plurality of rows and a plurality of columns, through which a plurality of semiconductor

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elements are passed, and which hold intermediate parts in a height direction of the semiconductor elements, and

Printing wiring [11] which is formed on a surface of the printed wiring sheet, and which electrically connects the plurality of semiconductor elements [printed wiring is drawn to product by process, final product is mesh wiring on a substrate].

Regarding claim 2, Mitsui high tec disclose in Fig. 4, a transparent covering material [17] is provided which covers in embedded form the printed wiring sheet and the plurality of semiconductor elements that are held on this printed wiring sheet.

Regarding claim 3, Mitsui high tec disclosed printed wiring sheet is constructed from a thin sheet material made of transparent hard synthetic resin [glass epoxy resin].

Regarding claim 4, Mitsui high tec disclosed in Fig. 4, the covering material [17] is constructed from a soft synthetic resin material, and the light receiving or light emitting panel is constructed with a structure deformable in the manner of a two dimensional or three dimensional curved surface.

Regarding claim 6, Mitsui high tec disclosed in Fig. 4, a spherical element main body made of a p type or n type semiconductor [14], a pn junction [between 14 and 15], and a pair of electrodes [16, 13] that are formed on both end parts with the center of the elements main body interposed, and that are connected to both ends of the pn junction, and the pair of electrodes are connected to the printed wiring [11] of the printed wiring sheet.

Regarding claim 11, Mitsui high tec disclosed in Fig. 2 and 4, there are provided with a printed wiring connected to an outer edge portions that contact at least a pair of

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electrodes [16 and 13] of each semiconductor element among the outer edge portions of each retaining hole of the printed wiring sheet.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui high tec (JP 2001267609) in view of Hamakawa et al (US 6,706,959 B2).

Regarding claim 5, Mitsui high tec disclosed in Fig. 1, solar cell panel is constructed with a hard flat-plate structure, but failed to disclose that covering material is constructed from a hard synthetic resin material. However, Hamakawa et al teaches an analogous device where the covering material is constructed from a hard synthetic resin material [5, column 17 lines 10-25]. It would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate Hamakawa et al's teaching into Mitsui high tec at least protect the particulate semiconductor elements

Claims 7-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui high tec (JP 2001267609) in view of Nakata (US 6,744,073 B1).

Regarding claim 7, Mitsui high tec disclosed semiconductor elements comprising a p type or n type semiconductor, a pn junction, and a pair of electrodes that are formed on both end parts in an axial direction of the element main body, and that are connected to both ends of the pn junction, and the pair of electrodes are connected to the printed

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wiring of the printed wiring sheet, but fails to disclose that main body is cylindrical.

However, Nakata et al teaches an analogous device where spherical elements are interchangeable with cylindrical element [column 2 lines 10-25]. It would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate Nakata's teaching into Mitsui high tec's device at least to make the handling easier [column 1 lines 60-65].

Regarding claim 8, Mitsui high tec disclosed all the limitations of the claims except plurality of partially spherical lens parts are formed in positions corresponding to the plurality of semiconductor elements in surface parts of the covering material on a light receiving or light emitting side of the light receiving or light emitting panel. However, Nakata teaches an analogous device where plurality of partially spherical lens [31] parts are formed in positions corresponding to the plurality of semiconductor elements in surface parts of the covering material on a light receiving or light emitting side of the light receiving or light emitting panel. It would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate Nakata's teaching into Kesusako et al's device at least to efficiently introduce sun light to the device [column 7 lines 50-60].

Regarding claim 9, Mitsui high tec disclosed all the limitations of the claims except plurality of partially cylindrical lens parts are formed in positions corresponding to the plurality of semiconductor elements in surface parts of the covering material on a light receiving or light emitting side of the light receiving or light emitting panel. However, Nakata teaches an analogous device where plurality of partially cylindrical

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lens [31] parts are formed in positions corresponding to the plurality of semiconductor elements in surface parts of the covering material on a light receiving or light emitting side of the light receiving or light emitting panel. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate Nakata's teaching into Kesusako et al's device at least to efficiently introduce sun light to the device [column 7 lines 50-60].

Allowable Subject Matter

Claims 10, and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 10, prior art does not teach reflecting films for reflecting light are formed in surface parts on an opposite side formed a light receiving or light emitting side of the light receiving or light emitting panel in combination with all the other limitations of the claim.

Regarding claim 12, prior art does not teach a pair of projecting pieces that correspond to at least a pair of electrodes of each semiconductor element, and that are bent so as to contact the pair of electrodes, are formed on outer edge portions of the respective retaining holes of the printed wiring sheet in combination with all the other limitations of the claim.

Regarding claim 13 and 14, prior art does not teach both surface of the covering material are formed as parallel flat surfaces, and glass plates or glass sheets are disposed on these surfaces in combination with all the other limitations of the claim.

Claims 15 and 16 are allowed.

Regarding claim 15, prior art does not teach the method of printed wiring for connecting the plurality of semiconductor elements is formed on the printed wiring sheet material in combination with all the other limitations of the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mursalin B. Hafiz whose telephone number is 571-272-8604. The examiner can normally be reached on m-f 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mbh


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PRIMARY EXAMINER